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KILAUEA AGAIN ACTIVE.

It may be of interest to the readers of SCIENCE to know that the fire has again returned to the world-renowned volcano Kilauea in the Hawaiian Islands after an absence of thirteen years. The citizens of Hawaii, who are intensely interested in this volcano, had well nigh despaired of witnessing another season of activity. The fresh lava appeared the last week of February, heralded by a slight earthquake. On the twenty-fifth instant it was not observed—smoke filling the pit. Two days later it is reported that a lava lake was on exhibition, two hundred and fifty feet long and one hundred feet wide. On March 10 the Volcano House reported that the lake is not so large as at first stated; but the crater is absolutely free from smoke. "Heavy rumblings and explosions indicate that another outbreak is imminent." Thus there seems to be a restoration of the old-time activity—such as will cause a large increase in the number of visitors.

Observations with a good spectroscope are needed. Professor Libbey used one there to good purpose a few years since, but did not name all the substances indicated. We especially need more information about the hydrogen flames, as well as the hydrocarbons. The latter substance is so commonly of organic origin that the best of evidence is required to fully establish a belief in its presence in this incandescent magma fresh from the realms of Pluto. It is hoped that some one who is skilled in the use of the spectroscope will utilize this opportunity to determine the nature of the substances now being emitted from this famous volcano. C. H. HITCHCOCK.

HANOVER, N. H.,

March 23, 1905.

SPECIAL ARTICLES.

THE PRAIRIE MOUNDS OF LOUISIANA.

WHILE it may not generally be appropriate to discuss the content of a paper on the basis of a mere abstract report by the secretary of a society, I venture to make some comments on the paper read by A. C. Veatch on the 'Natural Mounds of Louisiana,' at the late meeting of the Geological Society of

Washington, as given in the last issue of SCIENCE; since I have made a number of such excavations as are called for by him.

I have briefly discussed these mounds in my final report on the geological reconnoissance of Louisiana made by me 1869, published in 1873. I dug into a number of them on the Opelousas prairie, and also on the Calcasieu prairie. Having just previously investigated the mud-lumps of the Mississippi Passes, my first conjecture was that of mudspring origin; but the total absence of the characteristic 'onion' structure of such mudspring cones at once made me abandon this hypothesis. The total absence of any regular structure or stratification, such as characterizes all dune or other wind-drift structures, equally excluded these; as well as water erosion, since the soil and sub-soil of the surrounding prairie are quite distinctly in horizontal layers. I, therefore, as shown in the paper alluded to, considered their ant-hill origin as the only reasonable explanation; raising the question as to how the once teeming population of these vast areas came to be destroyed. Climatic changes suggested themselves to me, but the present existence of ant villages in the adjoining state of Texas seemed to negative this assumption also.

A number of years afterwards I was forcibly reminded of the inutility of supposing climatic changes to have occurred, when having camped in the Yellowstone valley after nightfall on a convenient elevation above the sodden ground, I was put to precipitate flight by an army of large ants issuing from beneath my rubber mattress. Daylight observation revealed to me the counterparts of the Louisiana mounds, only as a rule less thickly grouped than on the Louisiana prairies; and on excavating some of these mounds which had been deserted by their aggressive inhabitants, I noted precisely the same structureless earth I had seen in the Opelousas prairie, only this time traversed by half-obliterated burrows, which in the Louisiana mound-fields were almost wholly imperceptible, or at least undistinguishable from old root-tracks.

It therefore seems to me that the question of the Louisiana mounds resolves itself into a biological problem, viz., what kind of ant

might have built up these elevations, and what causes might have operated to depopulate them. For if mound-building ants now live both in Texas and in Montana, it is hardly necessary to call in climatic changes to account for the facts.

In California there are extensive tracts of similarly appearing mounds (*vulgo* 'hogwallows') in the San Joaquin valley; but here not only can their wind-drift origin be substantiated by ocular demonstration during any of the frequent sandstorms, when the sagebrush clumps are often left two feet above the general level because their roots resist the eroding action by holding the sand; but the wind-drift origin of the general soil surface can mostly be verified, even when, as frequently happens, the bushes thus left 'high and dry' die out in the course of time, and subsequent aqueous erosion increases the height, and a gradual consolidation of the material occurs.

'Hogwallows' of quite different origin occur in Washington, on the gravelly lands south of Tacoma city, *e. g.*, on Yelms prairie. Here, in the land of almost daily heavy rains during certain seasons, water erosion has removed the sand and smaller gravel from variously-shaped areas surrounding one or several larger blocks (erratics), the channels between adjacent mounds being lined with cobbles left behind by the water. Yet while the general aspect of the surface is similar to that of the 'hogwallows' of California and the mounds of the Calcasieu prairie, there is clearly no genetic relation between the three kinds of 'mounds,' however similar in their external conformation.

E. W. HILGARD.

BERKELEY, CAL.,

March 10, 1905.

PROGRESS IN THE STUDY OF THE KELEP.

THE existence of an efficient insect enemy of the boll weevil having been ascertained, it became necessary to determine also the extent, if any, to which it could be utilized in the United States. Since the last published report on the subject* many additional data

* 'Report on the Habits of the Kelep,' Bull. 49, Bureau of Entomology, U. S. Department of Agriculture, 1904.

have accumulated, but there are three features worthy of special notice.

The Kelep in Western Guatemala.—Recent letters from Mr. W. R. Maxon report the existence of the kelep in the cotton fields of the Retalhuleu district of western Guatemala. Mr. Maxon has also sent to the Department of Agriculture seeds and dried bolls of an upland cotton of a variety evidently similar to that grown by the Kekchi Indians of Alta Vera Paz. The three nectaries inside the bracts appear to be even larger than in the Kekchi cotton. The pair of inner stipular bracts which subtend each of these nectaries are the largest yet known, and have their margins fringed with long hairs, as though to increase their efficiency in holding the nectar to attract the keleps inside the involucre.

This west Guatemalan or so-called *Pachon* cotton is also an annual crop and is said to ripen in five months, or in even less time than the Kekchi. Following the analogy of other plants, these varieties, if they can be acclimatized in the United States, may be expected to mature in a still shorter period, which gives them distinct agricultural interest. The effectiveness of the plan of mitigating the injuries of the boll weevil by cultural means depends upon the shortening, as far as possible, of the growing season of the cotton plant. Other things being equal, a short-season variety will also be an early variety, of course, but the simultaneous planting of quick-growing varieties is likely to prove a better measure of protection than uncertain and desultory early planting, because the weevils are much more likely to perish by starvation after the weather is warm enough to bring them to the condition of activity than while they are kept by the cold in a torpid, hibernating state. It is thus not impossible that these short-season varieties of cotton which are cultivated in Guatemala by the help of the kelep may prove to be of value in the United States, even without their insect guardians. It may be repeated, too, that both of the dwarf, kelep-protected varieties of Guatemala belong to the upland type and produce fiber of good length and quality.